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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/593,035

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Ichiro Kakihara

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EXAMINER

BOYKIN, TERRESSA M

ART UNIT

PAPER NUMBER

1796

NOTIFICATION DATE

DELIVERY MODE

08/13/2008

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/593,035	<b>Applicant(s)</b> KAKIHARA ET AL.	
	<b>Examiner</b> Terressa M. Boykin	<b>Art Unit</b> 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 15 September 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12-14-06</u>  | 6) <input type="checkbox"/> Other: _____                          |

**Claim Rejections - 35 USC § 112**

**Claims 1- 5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

The recited “stably producing” is ambiguous as to which particular moiety applicants are referring, i.e. is the method stable or is the resulting polycarbonate stable, is the apparatus filter stable or is the reaction equilibrium stable?

The Examiner must give the claim its broadest interpretation *in light* of the specification without reading the limitations into the claims. While giving careful consideration of "each and every word" in a claim to determine what the claim covers.

Although a claims must be given their broadest reasonable interpretation consistent with the supporting description In re Hyatt, claim must be interpreted in light of the specification without reading limitations into the claim.

Further, with respect to claim 1 line 9, note that there is confusion with respect to whether applicants actually intend the mechanical movement of a filter being placed outside the reactor and then physically returned inside the reactor or does applicant actually intend filtrate or the washed filtered moiety of the polycarbonate. the question fairly arises in light of lines 12-16 of applicants' claim 1.

If the crux of the invention is directed to the mechanical washing and movement of the filter and not the process of making a polycarbonate, such may be better expressed as an apparatus claim.

However, if applicants' intention is to produce a novel or unobvious method for producing a polycarbonate, note that the process should recite all positive, active steps and any *process parameters* necessitated by the specification so that the claim will "clearly set out and circumscribe a particular area with a reasonable degree of precision and particularity, In re Moore, 169 USPQ 236, and make it clear what subject matter the claim encompasses, as well as make clear the subject matter from others would be precluded. In re Hammack 166 USPQ 204. it is noted that the pH as claimed in claim 2 and set forth in applicants specification on page 9 lines 1-10 since the terminal hydroxyl group ratio may vary greatly and thus cause "instability", the pH appears to be essential to the process conditions. For example, applicants state in claim 2 that pH of 7.5-10 is used. However, is the method inoperable at a pH of 7.1 which would still be basic but not within the range as set forth either in the specification or the claims. Clarification and correction required.

**Claims 1- 5 are rejected under 35 U.S.C. 112, first paragraph**, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

As stated above, the term "stably" is ambiguous. On page 7 lines 1-6 even in light of the recited " the operation of the production equipment becomes unstable and

marked product loss occurs..." is ambiguous as to whether applicants are referring to the equipment per se or the reaction process equilibrium etc.

The specification must clearly set forth the definition of the term "stability" must explicitly and with reasonable clarity, deliberateness, and precision or without the addition of new matter.

Further, on page 7 and with respect to claim 1 line 9, note that there is confusion with respect to whether applicants actually intend the mechanical movement of a filter being placed outside the reactor and then physically returned inside the reactor or does applicant actually intend filtrate or the washed filtered moiety of the polycarbonate. the question fairly arises in light of lines 12-16 of applicants' claim 1 and in view of the specification on page 7 line 24 through 4.

### **35 USC 103**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 1- 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPub 20020032299 see pages 1-8 in view of USP 4134964 col. 5 lines 8-41,**

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With regard to applicants' claims, **USPub 20020032299** discloses an aromatic polycarbonate resin is produced under the conditions that the flow velocity of the reaction mixture in a pipe through which a molten reaction mixture passes is a specific value or more, the viscosity-average molecular weight of the reaction mixture is 1,000 or more, the sum of the average retention times of the reaction mixture is not longer than 3 hours, the wall temperature of the pipe through which a molten reaction mixture passes is set to be higher than the temperature of *the reaction mixture in the pipe*, the catalyst deactivation agent is added within 2 hours *after the completion of the melt polycondensation reaction*, *the filtration is carried out by using a filter having a specific retained particle size under a specific pressure difference, specific treated amount of the aromatic polycarbonate resin per unit area of the filter* and a ratio of  $W$  (flow quantity of filtered polymer).times.1,000/ $A$  (maximum area of the polymer path in the filtration vessel) falling within a specific range, etc.

In the melt polycondensation method, the reaction mixture is transferred between reactors or discharged from the reactor in a hot molten state and the molten reaction mixture is exposed to high temperature during the transfer between reactor or the discharge from the reactor occasionally to cause the discoloration of the polymer or the generation of foreign matters and deteriorate the excellent characteristics such as transparency of the aromatic polycarbonate resin. The discoloration and the generation of foreign matter are undesirable from the viewpoint of product quality especially in an aromatic polycarbonate resin used in an optical use such as compact disk.

The process can produce an aromatic polycarbonate resin having excellent color and free from foreign matter without deterioration of quality in a pipe during the production process because of the high flow speed of the molten reaction mixture in the pipe to decrease the thermal history in the and the smooth flow of the reaction mixture in the pipe produce, in high efficiency, an aromatic polycarbonate resin having excellent color and transparency as well as excellent color stability and thermal stability by the proper use of a catalyst deactivation agent, and relieve the above problems of conventional technique by the use of the filtration method by the present invention in which an aromatic polycarbonate resin and molded article having excellent quality is obtained by efficiently removing the foreign matters with a polymer filter while, at the same time, suppressing the discoloration, crosslinking and generation of gel in the filter.

The reaction mixture consist of a mixture at the starting or proceeding reaction stage of polycondensation reaction in a process for producing an aromatic polycarbonate resin by the melt polycondensation reaction of a *mixture containing an aromatic dihydroxy compound and an aromatic carbonic acid diester* as main components in the presence of a *transesterification catalyst, etc., comprising a nitrogen-containing basic compound and an alkali metal compound and/or alkaline earth metal compound.*

Thus, the **USPub 20020032299** reference discloses the same invention as that which is claimed by applicants except for the rotating or movable filter that may be washed and returned to the reaction system .

**USP 4134964** discloses in col. 5 lines 8-41,

"In addition to a process as defined earlier, the present invention includes an apparatus suitable for use in carrying out that process, comprising: a first agitator-containing reactor provided with a first feed pipe for wet-processed phosphoric acid, a second feed pipe for a calcium compound, a third feed pipe for at least one alkali metal and/or silicic acid compound, and a metering admission means for active carbon, all three feed pipes and the metering means opening into the reactor, and the reactor being provided also with an overflow; an agitator-containing first reservoir connected to the first reactor by means of said overflow; an outlet line from the first reservoir, a branch line and a pressure filter, the outlet line running back from the first reservoir to the first reactor and the branch line connecting the outlet line with the pressure filter; a filtrate conveying line, a second reservoir, a filter cake-conveying line, a second agitator-containing reactor having an outlet line and a rotating filter; the filtrate conveying line connecting the pressure filter to the second reservoir, the filter cake-conveying line connecting the pressure filter to the second reactor, and the outlet line of the second reactor running to the rotating filter; a wash water feed line opening on to the rotating filter; a filter cake discharge means cooperating with the rotating filter; a second filtrate conveying line, and a washed filtrate-conveying line, both running from the rotating filter to, and opening into, a collecting tank having a bottom outlet, and the said

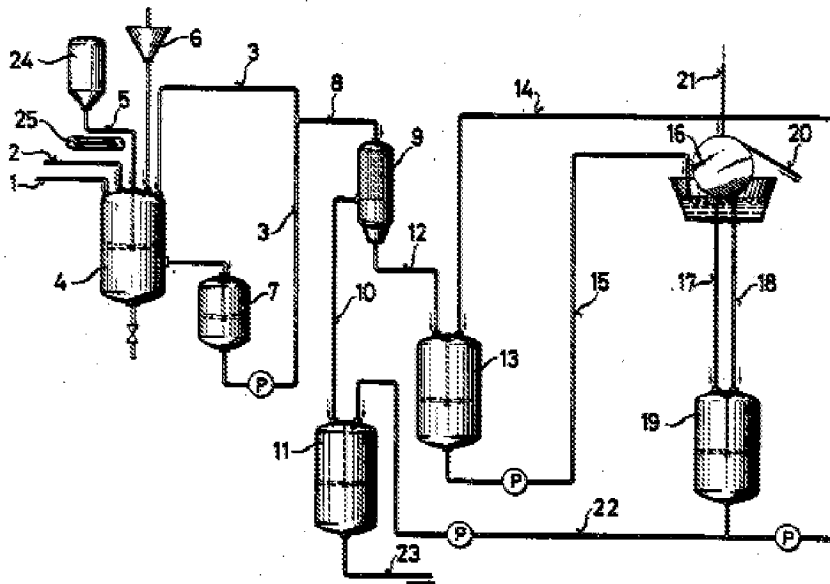
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bottom outlet leading to a pipe which is bifurcated to feed one branch line running back to the second reactor and another branch line running to the second reservoir.

Although overall focus of the reaction in this reference is the production of another product, the reference does disclose the rotation of the filter, the washing of the filter and the returning of the filter to the apparatus to complete the process production.

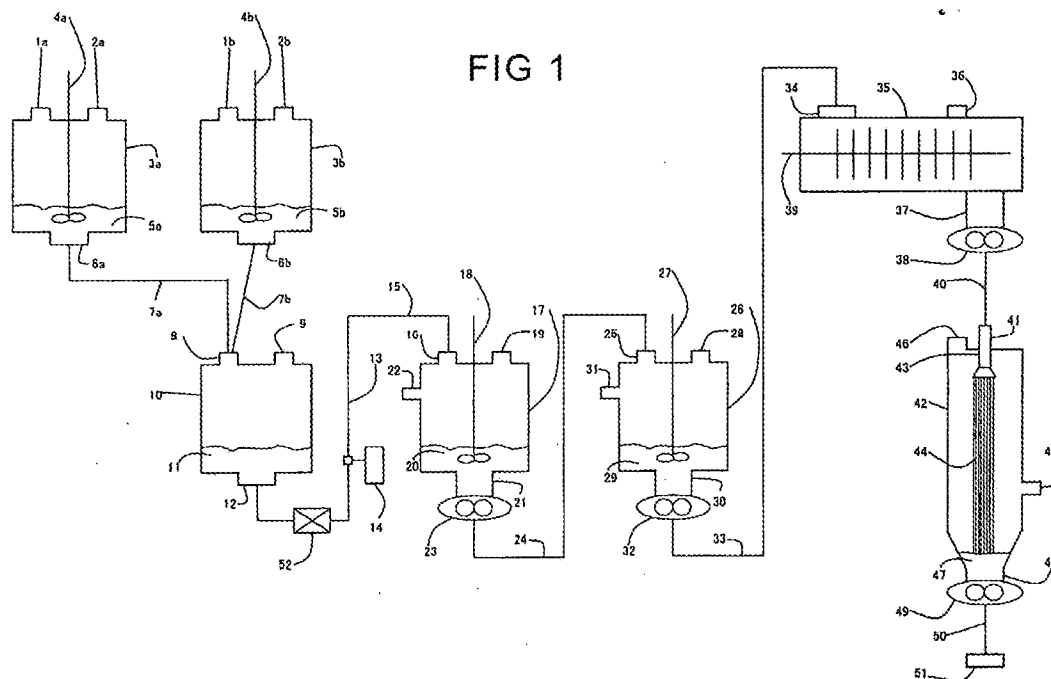
It is also interesting to note the similarities in the structure of the reaction vessels

Note **USP 4134964** has as the apparatus:



While applicants' apparatus as disclosed is very similar:





Thus, considering the factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

While it is true that *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990) states that the “mere fact” that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of

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the combination, that does not mean that “desirability” is a general pre-requisite to obviousness. There are in fact three possible sources for “motivation” to combine references: a) the nature of the problem to be solved; b) the teachings of the prior art; and c) the knowledge of persons of ordinary skill in the art. See MPEP 2143.01.

In this instance, as noted above,

Although overall focus of the reaction in this US reference is the production of another product, the reference does disclose the rotation of the filter, the washing of the filter and the returning of the filter to the apparatus to complete the process production.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to employ an apparatus appropriate for the production of polycarbonate that has therein a rotating or movable filter washed section since the **USP 4134964** reference above discloses that filters may rotate and be washed and returned to complete the process of the making of a product. The choice of washing with a basic solution would be known since such is necessary for the removal of the residue in a particular polycarbonate reaction process since, it is prima facie obvious to select a known material based on its recognized suitability for its intended purpose. See Sinclair & Carroll Co. v. Interchemical Corp., 325 US 327, 65 USPQ 297 (1945).

With regard to the selection of pH for the wash between 7.5-10.0, it is prima facie obvious to determine workable or optimal values within a prior art disclosure through the application of routine experimentation. See In re Aller, 105 USPQ 233, 235 (CCPA

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1955); In re Boesch, 205 USPQ 215 (CCPA 1980); and In re Peterson, 315 F.3d 1325 (CA Fed 2003) and further, since it is well-established that merely selecting proportions and ranges is not patentable absent a showing of criticality. In re Becket, 33 U.S.P.Q. 33 (C.C.P.A. 1937). In re Russell, 439 F.2d 1228, 169 U.S.P.Q. 426 (C.C.P.A. 1971).

### **Correspondence**

**Any inquiry concerning this communication or earlier communications from the examiner should be directed to Terressa Boykin whose telephone number is (571) 272- 1069 . The examiner can normally be reached at (571) 272-0580 on Monday through Friday from 9:30AM to 6:00PM.**

**If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck , can be reached at (571) 272- 1078 . The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.**

**Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair->**

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/Terressa M. Boykin/  
Primary Examiner, Art Unit 1796